TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean June 1940, at selected stations*

| Stations | Average pressure | Departure from normal | Highest | Date | Lowest | Date |
|---|---|---|---|---|---|---|
| | *Millibars* | *Millibars* | *Millibars* | | *Millibars* | |
| Point Barrow | 1,019.0 | +3.4 | 1,027 | 6,7 | 1,011 | 22 |
| Dutch Harbor | 1,008.8 | −3.7 | 1,029 | 27 | 990 | 21 |
| St. Paul | 1,012.4 | +1.2 | 1,031 | 29 | 1,001 | 20 |
| Kodiak | 1,011.2 | −1.7 | 1,024 | 28 | 997 | 13 |
| Juneau | 1,016.6 | +0.3 | 1,026 | 27 | 1,000 | 12 |
| Tatoosh Island | 1,020.3 | +3.7 | 1,027 | 13 | 1,006 | 11 |
| San Francisco | 1,013.2 | −1.4 | 1,019 | 1 | 1,008 | 15 |
| Mazatlan | 1,010.6 | +0.4 | 1,014 | 21 | 1,007 | 15 |
| Honolulu | 1,015.9 | −1.4 | 1,019 | 12 | 1,013 | 10 |
| Midway Island | 1,020.3 | +2.7 | 1,025 | 22 | 1,012 | 6 |
| Guam | 1,007.3 | −4.2 | 1,021 | 25 | 1,002 | 15 |
| Manila | 1,010.8 | +3.3 | 1,012 | 8 | 1,007 | [1] 14 |
| Hong Kong | 1,005.4 | −0.4 | 1,011 | 8 | 997 | 30 |
| Naha | 1,010.0 | +2.5 | 1,020 | 18 | 1,004 | 1 |
| Titijima | 1,013.1 | +0.2 | 1,022 | 30 | 1,009 | 11 |
| Petropavlosk | 1,012.0 | +0.8 | 1,024 | 23 | 1,003 | 16, 28 |

[1] And on other dates.

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observations.

*Extratropical cyclones and gales.*—Several cyclonic disturbances crossed northern waters in June, but so far as reported the resulting gales were few and not of force exceeding 8. These gales occurred on the 4th–5th near 41° N., 150° E.; on the 11th in scattered locations between 40° to 46° N., 133° to 150° W.; and on the 18th and 26th within the region 45° to 50° N., 175° W. to 175° E. The lowest barometer, 976 millibars (28.82 inches), was read on the American Steamship *Collingsworth* on the 18th, near 48° N., 176° E.

The stormiest part of the ocean was that lying along the California coast between 35° and 40° N. On several days this part of the coast was closely pressed by strong Pacific anticyclones which caused north to northwest gales, reaching force 10 on the 5th; force 9 on the 4th and 26th; and force 8 on the 20th and 27th.

*Tropical cyclones.—Typhoon of June 10–18.*—On page — of this REVIEW is an account by the Reverend Bernard F. Doucette, Weather Bureau, Manila, P. I., of a typhoon which originated east of Yap on the 10th, recurved at some distance east of Taiwan (Formosa) on the 16th, and disappeared east of northern Japan on the 18th. In this disturbance the Norwegian motor ship *Hoegh Silverstar* had a south wind of force 7, barometer 1,003 millibars (29.62 inches), near 16° N., 133° E., on the 14th.

*Mexican west coast hurricane of June 18.*—A small but fully developed hurricane with a calm center formed close to the Mexican coast west-northwest of Acapulco during the night of the 17th–18th. Before midnight there were thunderstorms in the vicinity of 17°–18° N., 102° W. About 2 a. m. of the 18th the southbound American Steamer *Winona* was in a strong northeasterly gale accompanied by blinding rain. At 3 a. m. the wind had increased to hurricane intensity, and at 3:30 a. m. the ship had entered the calm center of the storm in 17°24′ N., 101°54′ W., lowest barometer 985.1 millibars (29.09 inches). By 4 a. m. the wind had become southwest, again of hurricane force, thereafter lessening to force 6 at 6 a. m.

The American Steamer *La Placentia*, not far to the northwestward of the *Winona*, entered the storm area about 3:30 a. m., and a half hour later had a full hurricane wind from the north. At 4:15 a. m. she entered the calm center in 17°36′ N., 102°18′ W., with lowest barometer at 979.0 millibars (28.91 inches). Fifteen minutes later the barometer on ship had risen to 1,004.7 millibars (29.67 inches), with a south-southeast wind of force 10. By 6 a. m. the wind had fallen to force 5. Nothing further is known of the history of the storm, which was of very narrow extent, apparently moving in a west-northwest or northwest direction.

*Fog.*—So far as reports indicate, the usual June increase in fog over northwestern waters did not materialize, and there was little change from its frequency in May. In some 5° localities between the western Aleutians and central Japan fog was observed on 5 or 6 days. As an evidence of the continuity of fog that might be expected at this time of year, the American Steamship *Collingsworth* reported unbroken fogginess from 3:20 a. m. of June 14, in 40°10′ N., 149°50′ E., until 11:30 a. m. of the 17th in 46°49′ N., 168°22′ E. During this period no sights for position could be obtained. Between Midway Island and southern Japan there were 8 days with fog altogether, mostly occurring in the first decade of the month. Along the United States-Hawaiian routes, scatterings of fog formed on a few days. In American coastal waters fog was reported off Washington on 1 day; off Oregon on 4 days; off California on 10 days; and off Lower California on 4 days.

## TYPHOONS AND DEPRESSIONS OVER THE FAR EAST

BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

*Typhoon, June 10–18, 1940.*—As a low-pressure area, this storm first appeared about 300 miles east of Yap on June 10. It moved in a northwesterly direction, very likely increasing to depression strength but, as far as can be ascertained, not violent over a large area. When the center reached the regions about 400 miles east of southern Formosa, it recurved to the north-northeast and northeast, intensifying sufficiently to cause pressure to fall to 749.0 mm. (998.6 mb.) at Oshima and Borodino, Nansei (Loochoo) Islands, June 17. No strong winds were reported as the center moved rapidly northeastward, requiring only 2 days to reach the ocean regions east of northern Japan after recurvature east of Formosa. On June 18 the observations which were available indicated that the storm had either died out or had continued moving northeastward toward the Aleutian Islands as an extratropical depression. Most probably no lives were lost and no destruction to property occurred, as the storm center passed close to Japan, since there were no news dispatches giving such information.

Preliminary to the appearance of the low pressure area east of Yap, there was a quiet advance of air from the southwest quadrant, appearing first at Zamboanga (June 8) and then at Yap, indicated there by the movement of the lower clouds. On June 10 there was circulation in evidence, but no intensification manifested itself as the center began to move northwesterly. As the depression moved over the ocean east of Luzon, there was power enough to bring northeasterly winds over Manila, while Cebu and Zamboanga upper winds were from the southwest quadrant. The east quadrant current in the rear of the depression moved over the Archipelago as the depression recurved. At no time were the velocities stronger than 40 k. p. h. over the Philippines. This period gives the sequence accompanying a quiet advance of the southwesterly current followed by its recession and replacement by a current from the east quadrant.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean June 1940, at selected stations*

| Stations | Average pressure | Departure from normal | Highest | Date | Lowest | Date |
|---|---|---|---|---|---|---|
| | *Millibars* | *Millibars* | *Millibars* | | *Millibars* | |
| Point Barrow | 1,019.0 | +3.4 | 1,027 | 6,7 | 1,011 | 22 |
| Dutch Harbor | 1,008.8 | −3.7 | 1,029 | 27 | 990 | 21 |
| St. Paul | 1,012.4 | +1.2 | 1,031 | 29 | 1,001 | 20 |
| Kodiak | 1,011.2 | −1.7 | 1,024 | 28 | 997 | 13 |
| Juneau | 1,016.6 | +0.3 | 1,026 | 27 | 1,000 | 12 |
| Tatoosh Island | 1,020.3 | +3.7 | 1,027 | 13 | 1,006 | 11 |
| San Francisco | 1,013.2 | −1.4 | 1,019 | 1 | 1,008 | 15 |
| Mazatlan | 1,010.6 | +0.4 | 1,014 | 21 | 1,007 | 15 |
| Honolulu | 1,015.9 | −1.4 | 1,019 | 12 | 1,013 | 10 |
| Midway Island | 1,020.3 | +2.7 | 1,025 | 22 | 1,012 | 6 |
| Guam | 1,007.3 | −4.2 | 1,021 | 25 | 1,002 | 15 |
| Manila | 1,010.8 | +3.3 | 1,012 | 8 | 1,007 | [1] 14 |
| Hong Kong | 1,005.4 | −0.4 | 1,011 | 8 | 997 | 30 |
| Naha | 1,010.0 | +2.5 | 1,020 | 18 | 1,004 | 1 |
| Titijima | 1,013.1 | +0.2 | 1,022 | 30 | 1,009 | 11 |
| Petropavlosk | 1,012.0 | +0.8 | 1,024 | 23 | 1,003 | 16, 28 |

[1] And on other dates.

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observations.

*Extratropical cyclones and gales.*—Several cyclonic disturbances crossed northern waters in June, but so far as reported the resulting gales were few and not of force exceeding 8. These gales occurred on the 4th–5th near 41° N., 150° E.; on the 11th in scattered locations between 40° to 46° N., 133° to 150° W.; and on the 18th and 26th within the region 45° to 50° N., 175° W. to 175° E. The lowest barometer, 976 millibars (28.82 inches), was read on the American Steamship *Collingsworth* on the 18th, near 48° N., 176° E.

The stormiest part of the ocean was that lying along the California coast between 35° and 40° N. On several days this part of the coast was closely pressed by strong Pacific anticyclones which caused north to northwest gales, reaching force 10 on the 5th; force 9 on the 4th and 26th; and force 8 on the 20th and 27th.

*Tropical cyclones.—Typhoon of June 10–18.*—On page — of this REVIEW is an account by the Reverend Bernard F. Doucette, Weather Bureau, Manila, P. I., of a typhoon which originated east of Yap on the 10th, recurved at some distance east of Taiwan (Formosa) on the 16th, and disappeared east of northern Japan on the 18th. In this disturbance the Norwegian motor ship *Hoegh Silverstar* had a south wind of force 7, barometer 1,003 millibars (29.62 inches), near 16° N., 133° E., on the 14th.

*Mexican west coast hurricane of June 18.*—A small but fully developed hurricane with a calm center formed close to the Mexican coast west-northwest of Acapulco during the night of the 17th–18th. Before midnight there were thunderstorms in the vicinity of 17°–18° N., 102° W. About 2 a. m. of the 18th the southbound American Steamer *Winona* was in a strong northeasterly gale accompanied by blinding rain. At 3 a. m. the wind had increased to hurricane intensity, and at 3:30 a. m. the ship had entered the calm center of the storm in 17°24′ N., 101°54′ W., lowest barometer 985.1 millibars (29.09 inches). By 4 a. m. the wind had become southwest, again of hurricane force, thereafter lessening to force 6 at 6 a. m.

The American Steamer *La Placentia*, not far to the northwestward of the *Winona*, entered the storm area about 3:30 a. m., and a half hour later had a full hurricane wind from the north. At 4:15 a. m. she entered the calm center in 17°36′ N., 102°18′ W., with lowest barometer at 979.0 millibars (28.91 inches). Fifteen minutes later the barometer on ship had risen to 1,004.7 millibars (29.67 inches), with a south-southeast wind of force 10. By 6 a. m. the wind had fallen to force 5. Nothing further is known of the history of the storm, which was of very narrow extent, apparently moving in a west-northwest or northwest direction.

*Fog.*—So far as reports indicate, the usual June increase in fog over northwestern waters did not materialize, and there was little change from its frequency in May. In some 5° localities between the western Aleutians and central Japan fog was observed on 5 or 6 days. As an evidence of the continuity of fog that might be expected at this time of year, the American Steamship *Collingsworth* reported unbroken fogginess from 3:20 a. m. of June 14, in 40°10′ N., 149°50′ E., until 11:30 a. m. of the 17th in 46°49′ N., 168°22′ E. During this period no sights for position could be obtained. Between Midway Island and southern Japan there were 8 days with fog altogether, mostly occurring in the first decade of the month. Along the United States-Hawaiian routes, scatterings of fog formed on a few days. In American coastal waters fog was reported off Washington on 1 day; off Oregon on 4 days; off California on 10 days; and off Lower California on 4 days.

## TYPHOONS AND DEPRESSIONS OVER THE FAR EAST

BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

*Typhoon, June 10–18, 1940.*—As a low-pressure area, this storm first appeared about 300 miles east of Yap on June 10. It moved in a northwesterly direction, very likely increasing to depression strength but, as far as can be ascertained, not violent over a large area. When the center reached the regions about 400 miles east of southern Formosa, it recurved to the north-northeast and northeast, intensifying sufficiently to cause pressure to fall to 749.0 mm. (998.6 mb.) at Oshima and Borodino, Nansei (Loochoo) Islands, June 17. No strong winds were reported as the center moved rapidly northeastward, requiring only 2 days to reach the ocean regions east of northern Japan after recurvature east of Formosa. On June 18 the observations which were available indicated that the storm had either died out or had continued moving northeastward toward the Aleutian Islands as an extratropical depression. Most probably no lives were lost and no destruction to property occurred, as the storm center passed close to Japan, since there were no news dispatches giving such information.

Preliminary to the appearance of the low pressure area east of Yap, there was a quiet advance of air from the southwest quadrant, appearing first at Zamboanga (June 8) and then at Yap, indicated there by the movement of the lower clouds. On June 10 there was circulation in evidence, but no intensification manifested itself as the center began to move northwesterly. As the depression moved over the ocean east of Luzon, there was power enough to bring northeasterly winds over Manila, while Cebu and Zamboanga upper winds were from the southwest quadrant. The east quadrant current in the rear of the depression moved over the Archipelago as the depression recurved. At no time were the velocities stronger than 40 k. p. h. over the Philippines. This period gives the sequence accompanying a quiet advance of the southwesterly current followed by its recession and replacement by a current from the east quadrant.